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Book reviews

Karoo veld: Ecology and management, Karen J. Esler, Sue J. Milton, W. Dean, J. Richard (Eds.), Briza Publications, Pretoria, South Africa, 2006, ISBN: 1 875093 52 4. Recommended price R169.95 (VAT inclusive). Also available in Afrikaans: Karoo Veld: Ekologie en Bestuur. Soft cover edition with 214 pages, 350 colour photographs, 34 text figures including 14 charts, and 9 maps. Email: books@briza.co.za or pamelawood@metroweb.co.za

The greater part of the south-western and western parts of South Africa has an annual rainfall of less than 500 mm and can be described as Karoo veld. Rainfall is extremely erratic over most of the area and can vary from zero in some years to floods the next. This vast region is characterized by extreme heat, cold and drought and for the most part the scenery is spectacularly wild and dramatic — from the vast open plains of the central Great Karoo to the rugged fold mountains of the Western Cape and the Little Karoo. Here the visitor may encounter flash floods, dust storms, extreme cold, frost and snow as well as serene beauty and wide, uncluttered vistas — this is a country that engenders many strong emotions in a person ranging from awe and wonder to fear and even boredom! However, by digesting the copious information contained in the various sections and appendices of this book, the reader gains an immense appreciation and respect for the Karoo, the plants and creatures that live there and the farmers that make a living in this seemingly hostile and capricious environment.

Many of the farmers in these areas are acutely aware of the challenges of managing the scarce resources available to them from year to year in a sustainable fashion. However, there are also many examples of gross abuse and destruction of delicate Karoo ecosystems due to overstocking and bad veld management which can be largely ascribed to ignorance, greed and indifference.

The book consists of 4 parts:

Part 1. **Karoo Veld Ecology** (Climate, Hydrology, Soil, Geology and topography): background information required for veld assessment.

Part 2. **Karoo Veld** Management (Management philosophy, Livestock grazing management, Game management and Veld and wetland rehabilitation): practical advice for veld, animal, soil and water resource management.

Part 3. **Veld Assessment and Monitoring** (Quick multi-criterion veld assessment, Objective grazing capacity assessment, Keeping grazing records, Drawing your own conclusions, Examples of Karoo veld from good to degraded): a simple six-point scoring method enabling the land user to reach conclusions about the condition of the veld.

Part 4. **Appendices**: The appendices are extensive and include such useful information as an extensive glossary of terms, palatability and grazing indices, a well illustrated section on invasive alien weeds, Large Stock Unit (LSU) equivalents, a list of useful books and pamphlets, a list of consultants, and a well illustrated picture list of common Karoo plants grouped according to habit, e.g. shrubs and trees, grasses, and parasites. These short descriptions include the scientific binomial name, family name, a short habitat description and any vernacular names referred to in the text.

One observation that this reviewer has to make is the quaint use of vernacular names throughout the text of this book rather than scientific names. It is hereby acknowledged that this book is written primarily for use by the Karoo farmer and not only by the scientist, it is nevertheless a little tiresome to have to refer repeatedly to the list of scientific names and their vernacular equivalents under appendix B to make sense of names such as "ganna", "duinekweek" and "hairynipple". Here a copy of the relevant appendix makes a handy "bookmark" and a quick reference while perusing the text.

Karoo Veld is a well presented, practical and engaging publication which will have wide appeal. The many excellent figures and colour photographs are a worthy addition to the text and serve to dramatically illustrate many of the points raised during the discussions. This is essential reading for the established or emerging Karoo farmer, nature conservationist, student, researcher, or just the average civilian with an innate curiosity and strong desire to learn more about this extraordinary ecosystem — a veritable mine of information at an affordable price.

Rogan Roth
School of Biological and Conservation Sciences, University of KwaZulu-Natal, Private Bag X01, Scottsville 3209, South Africa
E-mail address: roth@ukzn.ac.za.

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Hydroponics — A practical Guide for the Soilles Grower — 2nd Edition, J. Benton Jones Jr., CRC Press, 2005. Recommended price £49.99. ISBN: 0-8493-3167-6. Webmail: www.tandf.co.uk

The book opens with a very important fundamental reflection "…Growers will need to better control the rooting environment

and the nutrient element supply to plants and adopt these cultural practices that will maximize plant performance." Chapter one examines the introduction to hydroponics, the history of the science as well as the relative advantages and disadvantages in a very easy-to-read fashion. It is short and succinct and written in a fashion that does not overwhelm the uninitiated grower. It helps clarify the existing confusion between hydroponics and soilless culture and offers the very frank but objective warning on page 4 that "…hydroponics culture is often easier to promote than to sustain". Benton Jones places a strong emphasis on the need to understand the chemistry of the nutrient solution required for proper management of any such system.

Chapter two deals with how plants grow and the science of plant nutrition whilst chapter three makes a brief foray into the comparison of root–soil interfaces compared to the uptake of roots in a soilless organic medium. Both chapters are written in a manner suited to the practical growers but possibly too simplistically for a student of the biological sciences. Chapter four is a very well summarised review of plant roots and their role and function. The section on ion uptake is very valuable and although it has been somewhat simplified it never loses its scientific integrity. At the same time one does not require a crash course in plant physiology to make it understandable. The very important concept of essential elements (the sixteen most important ones) is discussed in chapter 5. Each element is described in terms of its content in plants, biochemical function, deficiency symptoms, excess symptoms, forms of utilization, and nutrient solution reagents. This critical section of information pertaining to the role of the macro and micro-elements is adequately covered by the author and should provide the reader with a good introduction to basic nutrition. The matter of beneficial elements (not to be confused with essential elements) is covered in chapter 6. Although more of interest than value this chapter should be read in the light of our expanding knowledge of plant nutrition and the author makes a glancing reference to the importance of humic acids.

The complex subject matter of nutrient solutions is well laid out in chapter seven. Benton Jones Jr. is clear in his message when he states "Probably no aspect of hydroponic/soilless growing is as misunderstood as the constitution and use of nutrient solutions". The author not only gives an exhaustive range of nutrient formulae but supports this with a thorough discussion of very important issues such as water quality, water and nutrient filtering and clearly defines the complexities of reagents. I found his explanations of pH and electrical conductivity both informative and applicable to hydroponics and any associated plant propagation activity. Chapters eight and nine examine hydroponic systems with special attention given to nutrient film techniques (NFT) as well as a range of nutrient formulations specific to the system. There is also a comprehensive discussion of medium based hydroponic systems which will both appeal and help those growers looking at alternatives to conventional growing techniques in plastic tunnels. Chapter ten is an excellent introduction to organic soilless media which plays an increasingly more important role in horticultural production but, unfortunately, is increasingly adding to the costs of production.

Chapter 11 offers valuable information pertaining to hydroponic cropping and will be of interest to both the avid amateur hydroponicist and the large commercial grower. The contents of this chapter are more of a practical nature and will be of particular interest to anyone involved in the production of tomatoes and cover issues as diverse as grafting techniques and flower pollination through to inorganic and organic fertilizers commonly used in tomato production. If you are a tomato grower and you pay attention to the author's recommendations, you will greatly enhance your ability to produce this crop, irrespective of whether you do so hydroponically or conventionally. Although in not as much detail as tomatoes, Benton Jones takes the reader through the finer points of the hydroponic production of cucumbers, peppers, lettuce, strawberries and a number of other edible crops. This is a particularly helpful chapter for the 'hand-on' grower and shows just how far hydroponics has come from the days when only lettuce was considered suited to the technique.

Although not specific to purist hydroponic production, the chapter (chapter 12) on greenhouses is an excellent inclusion. Albeit specific to tunnels in the USA it is just as valuable to any Southern Hemisphere grower and covers such diverse topics as location, structural design, glazing materials, heating, cooling, supplemental lighting, carbon dioxide enrichment and climatic control. Even if you have no intention of switching to hydroponic production, this comprehensive review of greenhouses will be invaluable to you.

Diagnostic testing procedures are integral to any grower, and more so to the hydroponic grower where there is no soil media to buffer against some serious misapplication of nutrients. The important fields of water and nutrient solution analysis are adequately covered in chapter thirteen and the matter of plant analysis and elemental concentration ranges for the major hydroponic crops (tomatoes, cucumber and peppers) are listed in a series of easy to interpret tables. Chapter fourteen deals briefly with pest control whilst the educational role of hydroponics covered in chapter fifteen was of greater value than I initially thought, especially the section on developing nutrient element deficiency experiments.

There seems to be an error with reference to the edition number. The book cover refers to the second edition whilst the preface states that this is the third edition. So what was my overall impression of the book? I found the language style to be flowing yet disciplined enough not to read like a weekly periodical. The font size means you do not feel overwhelmed when you turn a page and chapters have been kept deliberately short and to the point. Each chapter is nicely wrapped up in a short summary at the end and Benton Jones has made use of a plethora of modern references that all students of hydroponics will find helpful. Appendix A is an excellent reference of definitions whilst Appendix B is a comprehensive summary of all the essential elements and the common reagents for making nutrient formulations. Appendix C is a reference of books which strangely the author has separated from the main body of references. I found Appendix D, conversion factors, to be very helpful and students will find this section to be a very handy companion. The inclusion of the CD was unfortunately not as exciting as anticipated and the quality of some of the photographs and illustrations has been somewhat amateurishly reproduced.

This is generally a really good book and well worth having on any plant scientists' shelf.

Dean da Costa
Mondi Business Paper, Pietermaritzburg, South Africa
E-mail address: dean.dacosta@mondibp.com.

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World Seaweed Resources, A.T. Critchley, D.B. Largo, M. Ohno. ETI Bioinformatics, University of Amsterdam, P.O. Box 94766, NL-1090 GT, Amsterdam, The Netherlands. £21.23 without VAT or £24.95 including VAT in the EU, postage and packaging an additional £3.50, ISBN 90-75000-80-4. Available worldwide from ETI Information Services (www.etiis.org.uk). DVD-Rom (Windows & Macintosh)

Seaweeds are an important resource with tons being harvested annually for use mainly in the food and pharmaceutical industries. The harvesting and cultivation of commercially important seaweeds is a growing industry worldwide and provides a livelihood for many people, especially in developing countries.

This electronic reference system compiled over a three-year period, includes contributions from 150 authors. The electronic "book" is organized into a number of categories making it easy to access the information. Each of the 104 chapters consists of an individual PDF file. Topics include the history and early use of seaweeds including seaweed art, musical instruments, poetry and stamps, the seaweed resources of 47 countries, cultivation and farming of specific commercially important species and methods of cultivation such as tank culture and polyculture. The ultilization of specific products such as carrageenans, hydrocolloids, food and non-food products as well as pharmacological products and seaweed concentrates used in agriculture are also covered. Other related topics include kelp rehabilitation, invasive seaweeds and social and environmental impacts of seaweed farming.

The use of an electronic format has allowed for the inclusion of many high quality figures, video footage and web links. This could not have been done if published as a book. A nice touch is the inclusion of short autobiographies and photographs of all the contributing authors allowing faces to be put to names previously only seen in print.

This contribution is a valuable and comprehensive reference system. It is interactive and easy to use, making it ideal for teaching. It should be of great interest to anyone involved in the seaweed industry.

W.A. Stirk
Research Centre for Plant Growth and Development, School of Biological and Conservation Sciences, University of KwaZulu-Natal Pietermaritzburg, Private Bag X01, Scottsville 3209, South Africa
E-mail address: stirk@ukzn.ac.za.

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